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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,059	04/21/2005	Mariko Hirai	052453	6198

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,059	HIRAI ET AL.	
	Examiner	Art Unit	
	SOPHIE HON	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/18/08*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10,12,13,15 and 17-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10,12,13,15 and 17-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Withdrawn Rejections

1. The objection to claims 12, 14 is withdrawn due to Applicant's amendment dated 12/18/08.

2. The 35 U.S.C. 112, 2nd paragraph rejection of claims 8-10, 12-15, 25 and 28 is withdrawn due to Applicant's amendment dated 12/18/08.

Response to Request for Reconsideration

Repeated Rejections

3. The 35 U.S.C. 103(a) rejections of claims 1, 3, 8-10, 12, 17-23, 25-26, 28-29 over Land in view of Kawazu as the primary combination of references are repeated for the same reasons previously of record in the Office action dated 09/18/08.

4. The 35 U.S.C. 103(a) rejections of parent claims 1 and 8 over Land in view of Kawazu are reproduced below for clarity in the prior art rejections of new dependent claims 31 and 32.

Regarding claim 1, Land teaches a polarizer composed of a film comprising a structure in which fine metallic particles (finely divided polarizing agent, column 10, lines 69-71, colloidal asymmetric metal, column 11, lines 10-13) are dispersed in a polymer matrix (column 10, lines 13-72), where the polymer forming the polymer matrix is a cellulose acetate (column 2, lines 46-49) that is disclosed by Applicant as being one of the translucent polymers having a light transmittance within the range of 88% or more

when measured thereof with a thickness of 1 mm (cellulose-based resin, page 17, first paragraph) and has uniaxial birefringence in the film plane (plane polarizing film, oriented with the long axis of the particles in substantial parallelism with the direction in which said polymer is oriented, column 10, lines 67-74). Land teaches that a domain is formed with fine metallic particles after the film is immersed in a metallic salt solution, and the metallic salt is then converted to metallic particles (reduction of the salt, column 7, lines 47-52), wherein the film is uniaxially stretched only after conversion of the metallic salt to fine metallic particles (reducing the salt to a metal and stretching the sheet, column 7, lines 47-52, uniaxial, column 3, lines 25-40) which means that the metallic particles have a substantially spherical shape having been formed in an unoriented matrix. Land teaches that the metallic salt can be either gold chloride or silver nitrate (column 7, lines 25-40) which upon reduction is converted to the fine gold or silver particles. Land fails to disclose the average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Land is silent regarding the average particle diameter and aspect ratio of the metallic particles, it would have been necessary and hence obvious

to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Land, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Regarding claim 8, Land teaches a polarizer composed of a film in which fine metallic particles (finely divided polarizing agent, column 10, lines 69-71, colloidal asymmetric metal, column 11, lines 10-13) are dispersed in an organic polymer matrix (column 10, lines 13-72), having a uniaxial birefringence in the film plane (plane polarizing film, oriented with the long axis of the particles in substantial parallelism with the direction in which said polymer is oriented, column 10, lines 67-74) where the polymer forming the organic polymer matrix is a cellulose acetate (column 2, lines 46-49) that is disclosed by Applicant as being a translucent polymer (cellulose-based resin, page 17, first paragraph). Land teaches that a domain is formed with fine metallic particles after the film is immersed in a metallic salt solution, and the metallic salt is then converted to metallic particles (reduction of the salt, column 7, lines 47-52), wherein the film is uniaxially stretched only after conversion of the metallic salt to fine metallic particles (reducing the salt to a metal and stretching the sheet, column 7, lines 47-52, uniaxial, column 3, lines 25-40) which means that the metallic particles have a substantially spherical shape having been formed in an unoriented matrix. Land teaches that the metallic salt can be either gold chloride or silver nitrate (column 7, lines

25-40) which upon reduction is converted to the fine gold or silver particles. Land fails to disclose the average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Land is silent regarding the average particle diameter and aspect ratio of the gold or silver metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Land, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Thus, although Land, as modified by Kawazu, fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered relative to the polarizer, the absorption peak wavelength shifts in accordance with an alteration in the azimuth, these properties are presumed to

be inherent since Land, as modified by Kawazu, teaches the claimed polarizer, as described above. Where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

5. The 35 U.S.C. 103(a) rejections of claims 4-10, 12-15, 24-25, 27-28 over Hikmet in view of Kawazu as the primary combination of references are repeated for the same reasons previously of record in the Office action dated 09/18/08.

6. The 35 U.S.C. 103(a) rejections of parent claim 4 is reproduced below for clarity in the prior art rejections of new dependent claims 30 and 32.

Regarding claim 4, Hikmet teaches a polarizer (column 5, line 67) in which fine metallic particles (free metal particles, column 5, lines 13-16, nanometer size, column 1, line 15) are dispersed in a matrix formed with a liquid crystalline material (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 17-27, Fig. 1). Hikmet teaches that a domain is formed with fine metallic particles, when the organic matrix is immersed in a dilute solution containing metal salt (3 wt.%, column 5, lines 49-55) and the metal salt is converted to insoluble free metallic particles (column 3, lines 50-51) which are of nanometer size small enough to be quantum dots (column 1, lines 14-20). Hikmet fails to disclose the specific average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Hikmet is silent regarding the specific average particle diameter and aspect ratio of the metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Hikmet, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Response to New Claims

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Land in view of Kawazu, as applied to claims 1, 3-8, 12, 17-18, 26, 28-29 above.

Land, as modified by Kawazu, teaches the polarizer composed of a film comprising a structure in which fine metallic particles are dispersed in a translucent polymer matrix, as discussed above. Land, as modified by Kawazu, fails to teach that the film has a stretch ratio of 3 to 30 times.

However, Land teaches that the film is stretched to the limit of its rubber-elastic state (stretching the sheet, column 7, lines 47-52) and that the stretch ratio can be an appreciable amount (column 9, lines 1-15), thus establishing the stretch ratio of the film as a result-effective variable, that is varied for the purpose of providing the desired polarization (dichroism, column 5, lines 45-50)..

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the film of Land with a stretch ratio that is within a range of 3 to 30 times, in order to obtain the desired polarization, as taught by Land.

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hikmet in view of Kawazu, as applied to claims 4-10, 13-15, 27-28 above.

Hikmet, as modified by Kawazu, teaches the polarizer in which fine metallic particles are dispersed in a matrix formed with a liquid crystalline material, as discussed above. Although Hikmet, as modified by Kawazu, fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered relative to the polarizer, the absorption peak wavelength shifts in accordance with an alteration in the azimuth, these properties are presumed to be

inherent since Hikmet, as modified by Kawazu, teaches the claimed polarizer, as described above. Where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

Response to Arguments

9. Applicant's arguments have been fully considered but they are not persuasive.

10. Applicant argues that since the secondary reference Kawazu is directed to inorganic compounds namely SiO_2 having higher heat and abrasion resistance, it teaches away from the organic compounds namely polymers used by Land.

Applicant is respectfully reminded that Land is the primary reference that teaches the polarizer comprising the polymer matrix and the metallic particles, wherein the metallic particles are inorganic and have a substantially spherical shape, having been formed in an unoriented matrix where the film is uniaxially stretched only after conversion of the metallic salt to fine metallic particles (reducing the salt to a metal and stretching the sheet, column 7, lines 47-52, uniaxial, column 3, lines 25-40), as described above. Land is silent regarding the average particle diameter and aspect ratio of the metallic particles, making it necessary and hence obvious to have looked to

the secondary reference of Kawazu, which teaches a working polarizer, for suitable values.

Kawazu teaches that the metallic salt of Land can be reduced within the matrix to form fine metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Thus, Kawazu does not teach away from the relevant teachings of Land, but rather, provides suitable values for the average particle size and aspect ratio that is missing in Land, to obtain a suitable working polarizer.

As such, the rejections over Land, as modified by Kawazu, stand.

11. Applicant argues that the content of the fine metallic particles dispersed in the matrix [of the claimed polarizer] is not obvious from the description of Oshima since the content of the fine metallic particles taught by Oshima is dispersed in the matrix of the resin film and not the polarizer.

Applicant is respectfully reminded that Land is the primary reference that teaches that the fine metallic particles provide the desired polarization of light (column 2, lines 5-10) while teaching that the polarizer transmits more than 75% of the polarized light (of one component of the incident beam, column 4, lines 1-5). Land is silent regarding the content of the fine metallic particles in the light transmissive matrix, thus making it necessary and hence obvious to have looked to the secondary reference of Oshima. Oshima teaches that a content of fine metallic particles (metal powder, column 2, lines

65-68, particle diameter about 0.01 μ = 10 nm, column 3, lines 2-6) of about 0.3 to 30 parts by weight relative to 100 parts by weight of the matrix materials (mixed into the synthetic resin, % by weight, column 3, lines 2-9), which overlaps the claimed range of 0.1 to 10 parts by weight, of a light transmissive matrix (transparent synthetic resin, column 2, lines 63-65), provides the layer in which the fine metallic particles are present, with a favorable polarizing efficiency (has a favorable polarizing efficiency, column 3, lines 5-15).

To summarize, Oshima teaches that the specified range of content of the fine metallic particles in a light transmissive matrix provides a favorable polarizing efficiency, which is suitable for defining the content of the fine metallic particles in the light transmissive matrix of the polarizer of Land.

12. Applicant's arguments regarding the secondary reference of Kawazu are similar to those against the prior art rejections over Land, as modified by Kawazu, and are addressed above.

13. Applicant argues that Hikmet does not allow for the 6 nm sized gold particles taught by Kawazu since Hikmet is specifically directed to the formation of quantum dots comprising a CdS complex which are significantly smaller than the 6 nm gold particles of Kawazu, and that as such, one of skill in the art would not change the CdS complex for a gold particle.

Applicant is respectfully apprised that the primary reference Hikmet teaches that a domain is formed with fine metallic particles, when the organic matrix is immersed in a dilute solution containing metal salt (3 wt.%, column 5, lines 49-55) and the metal salt is

converted to insoluble free metallic particles (column 3, lines 50-51) where the fine metallic particles can indeed be gold (free metal particles, Au, column 5, lines 13-20). Since Hikmet is silent regarding the specific average particle diameter and aspect ratio of the metallic particles, it would have been necessary and hence obvious to have looked to the secondary reference of Kawazu which teaches a working polarizer, for suitable values.

Kawazu teaches that the metallic salt of Hikmet can be reduced within the matrix to form fine metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Thus, Kawazu does not teach away from the relevant teachings of Hikmet, but rather, provides suitable values for the average particle size and aspect ratio that is missing in Hikmet, to obtain a suitable working polarizer.

As such, the rejections over Hikmet, as modified by Kawazu, stand.

Conclusion

14. Applicant's amendment adding new claims 30-32 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sophie Hon/
Examiner, Art Unit 1794

/KEITH D. HENDRICKS/
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